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Book Review - Abominable Science!: Origins of the Yeti, Nessie, and Other Famous Cryptids

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tionary psychology have located and explained, the need for struggle, survival, dominance, and procreation emerge in many ways through the sonnets.

But the author's virtues as a critic, the quality of his sensitivity to poetic patterns, his nuanced reading of poetic patterns, his keen attention to relationships among different sonnets, and his strong literary scholarship have little to do with the biology he knows well. His case for the importance of biology in aesthetics is strong. The case for application of evocriticism to particular texts is weak.

Making criticism a science may be worth the effort, but despite E. O. Wilson's famous call to unify all knowledge within the framework of biology, and David Sloan Wilson's application of evolutionary thinking as key to all problems, Boyd's application of it to the minutiae and uniqueness of particular literary works often sounds parodic. Applying the broad strokes of human nature to particular poems not only fails to account for cultural contingency (although a nod is made in that direction) but often turns uniqueness into banality.

This is a useful book about Shakespeare's sonnets just where Boyd is free of the constraints of his own theory. After close readings of difficult poems, he slides off into banalities dressed as biology. Love poems are explained in terms of sexual selection: "[t]he logic of reproductive specialization into female and male leads to one sex's producing resource-rich eggs and the other's producing massive numbers of cheap but highly motile sperm to increase the chance that some will reach the far fewer available eggs. Sperm is cheap and eggs are dear" (p. 57). Nothing to disagree with, but nothing that throws new light on particular poems. This sort of thing does not bring joy back to criticism, and is comically distant from the tone of the poems under discussion. It is absurd to leave the biological out of criticism, when humans are so much the product of biology. Better Darwin than Freud or Lacan is the idea. But this book proves the reverse of its larger message: serious criticism operates best precisely where Boyd forgets eggs and sperm and shows us the miracle of Shakespeare's manipulation of language.

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ABOMINABLE SCIENCE!: ORIGINS OF THE YETI, NESSIE, AND OTHER FAMOUS CRYPTIDS.

By Daniel Loxton and Donald R. Prothero. New York: Columbia University Press. $29.95. xviii + 411 p.; ill.; index. ISBN: 978-0-231-15320-1 (hc); 978-0-231-52681-4 (eb). 2013.

This volume explores cryptozoology and educates how skepticism and critical thinking can lead to an accurate understanding of our world. It covers historical origins of the cryptids (legendary animals lacking physical evidence), explores their evidence, and evaluates their plausibility against alternatives like misidentification and hoaxes. The authors challenge whether readers will uncritically accept cryptids "as we accept Father Christmas when are children" (p. 100) or place the burden of proof on the claimant, since "[e]xtraordinary claims require extraordinary evidence" (p. 326).

Five cryptids are explored in detail: Bigfoot, the Yeti, the Loch Ness Monster, the Great Sea Serpent, and the Congo dinosaur, Mokele-mbembe (the strangest owing to involvement by prominent creationists in a misguided attempt to disprove evolution). Each case lacks physical evidence, but claims numerous pieces of circumstantial evidence. Most involve persons of questionable reliability (but charismatic personality) producing evidence that seems too good to be true. They share the convenient experience of setting out to find a cryptid, and accomplishing it on their first attempt. Later, people forget that the most famous evidence was procured by known hoaxers. Many proponents commit the scientific error of seeking confirmation of a preconceived belief rather than seeking new data from which to draw conclusions. Eyewitness accounts are shown to be worthless as evidence, despite the common claim that so many cannot all be wrong. Historical accounts of monsters are shoehorned into the mold of modern cryptids in a post hoc manner. Cryptozoology seems to be rife with jokesters espousing that "the confounding of scientific skeptics is always desirable" (p. 83).

The final chapter, Why Do People Believe in Monsters?, concludes that even "normal" people believe cryptids to be plausible. It includes a debate concerning the pros and cons of the practice of cryptozoology. Loxton believes it inspires curiosity, leads people to a love of nature, and introduces them to the scientific method. Prothero holds that pseudosciences undermine the work of real scientists and foments mistrust of the scientific establishment.

The authors each provide a unique voice. Prothero is the classical scientific skeptic who seeks to ensure that the public gets information supported by real evidence. Loxton is a skeptical, yet fasci-

nated, cryptid pursuer, who views the cryptozoology as interesting, yet flawed. Because of their sympathetic approach, credulous readers are not put on the defensive and are guided to evidence-based conclusions. The book tends toward repetition. However, this reflects the tendency of cryptozoologists to repeat each other's mistakes and scams.

Abominable Science! will make an excellent tool for critical thinking education. It includes teachable moments that demonstrate confirmation bias, motivated reasoning, and conflicts between partisan advocacy and objective inquiry. The documentation and endnotes are almost as interesting as the text. This can demonstrate how rigorous citation of primary sources can combat what Carl Sagan politely referred to as "baloney." New ideas "must survive the most rigorous standards of evidence and scrutiny" (p. 7). Ideas not meeting those standards are bad ideas. This is the most important lesson from *Abominable Science!*

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Advanced Remote Sensing: Terrestrial Information Extraction and Applications.

Edited by Shunlin Liang, Xiaowen Li, and Jindi Wang. Academic Press. Amsterdam (The Netherlands) and Boston (Massachusetts): Elsevier. $149.95. xx + 799 p.; ill.; index. ISBN: 978-0-12-385954-9. 2012.

This is an edited volume that is a reference on Earth science remote sensing techniques. The audience is not stated, but this book would appeal to remote sensing scientists and other researchers interested in Earth science products developed from remotely sensed data. The volume's editors adeptly compiled chapters from many authors to create a reference that is easy to navigate and read. Although the authors are largely affiliated with Earth science research in China, the book does an excellent job of describing state-of-the-art remote sensing techniques developed and used around the world as of 2010.

The first chapter provides a concentrated introduction to remote sensing and is written for a general audience. The remaining 23 chapters focus on more advanced concepts, but the chapters are written so people with a limited background in remote sensing will understand the logic behind the processes being described.

The remainder of the book is organized into five sections. The first section on data processing methods and techniques describes a range of image preprocessing techniques such as geometric correction, gap filling, data fusion, and atmospheric correction. The atmospheric correction chapter could have used more algorithms and it should have covered terrain-related radiometric correction, but overall this section provides useful details about routine but sophisticated processing required to make remotely sensed imagery usable for further processing or analysis.

The next three sections cover advanced methods for calculating a wide range of biophysical variables that are mapped using remotely sensed data. Each of these chapters provides a short, broad overview of the variable being described, followed by a high-level description of the approach and details and algorithms. In addition to processing techniques, a description of available products for each variable is presented. The second section on estimation of surface radiation budget components covers incident solar radiation, albedo, land-surface temperature/emissivity, and the surface longwave radiation budget. The next section on estimation of biophysical and biochemical variables is largely focused on vegetation variables, including canopy biochemistry, leaf area index, absorbed photosynthetically active radiation, fractional vegetation cover, above-ground biomass, and vegetation productivity. In the fourth section on estimation of water balance components, five chapters cover precipitation, evapotranspiration over land, soil moisture, measuring snow equivalence, and water storage.

The final section on production generation and application demonstrations covers three somewhat independent topics. The first topic is guidance to compare and combine the growing number of land-variable satellite products being produced. The next chapter provides an overview of data production environments to illustrate the equipment and management structure that goes into a typical remote sensing product production system. The last chapter is on land cover and land-use change that brings together some of the variables discussed earlier in the book to map urban environments, agriculture and forest cover, and change.

In summary, *Advanced Remote Sensing: Terrestrial Information Extraction and Applications* is a thorough reference for a broad range of state-of-the-art remote sensing techniques with a focus on creating biophysical parameters from remotely sensed data and it fills a niche among remote sensing textbooks and applications.

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